

WHAT IS CLAIMED IS

1 1. A method for achieving uniform expansion of a dielectric plate
2 comprising the following steps:

3 (a) providing a mold for injection-molding the dielectric plate;

4 (b) determining locations, sizes and shapes of core pins of the
5 mold;

6 (c) injecting a plasticized dielectric material into the mold to form
7 the dielectric plate wherein the core pins guide a flow of the
8 plasticized dielectric material whereby molecules of the
9 dielectric material are properly oriented; and

10 (d) curing and forming the dielectric plate in which holes
11 corresponding to the core pins are formed.

1 2. The method as claimed in Claim 1, wherein the core pins have a rhombic
2 cross section which form rhombic holes in the plate.

1 3. The method as claimed in Claim 1, wherein at least some of the core pins
2 are alternately arranged in rows whereby the holes formed in the plate are
3 also alternately arranged in rows.

1 4. The method as claimed in Claim 1, wherein the dielectric material is a
2 liquid crystal polymer.

1 5. The method as claimed in Claim 1, wherein the plate is rectangular, and
2 wherein the thermal expansion coefficient of the plate in a longitudinal
3 direction is 13×10^{-6} mm/mm·°C and the thermal expansion coefficient of
4 the plate in a lateral direction is 22×10^{-6} mm/mm·°C.

054250" 26427E60

1 6. The method as claimed in Claim 5, wherein the plate is a base plate of a
2 ball grid array type connector mounted on a circuit board, and wherein
3 the circuit board has a coefficient of thermal expansion of $17-20 \times 10^{-6}$
4 mm/mm $^{\circ}$ C substantially corresponding to the longitudinal and lateral
5 direction thermal expansion coefficients of the plate.

1 7. The method as claimed in Claim 1, wherein the plate is a base plate of a
2 ball grid array type connector mounted to a circuit board made of a
3 material having a thermal expansion coefficient substantially
4 corresponding to the thermal expansion coefficient of the plate.

1 8. The method as claimed in Claim 1, wherein at least some of the holes are
2 blind holes.

1 9. The method as claimed in Claim 1, wherein the holes formed in the plate
2 have different sizes.

1 10. The method as claimed in Claim 1, wherein the core pins have an
2 elliptical cross section forming elliptical holes in the plate.

1 11. The method as claimed in Claim 1, wherein the core pins are arranged to
2 guide the flow of the dielectric material to completely and uniformly fill
3 in the mold.

1 12. An electrical connector comprising a base plate fixed to a circuit board
2 and a cover movably mounted to the base plate, the base plate defining
3 contact receiving bores for receiving and retaining conductive contacts
4 therein, the contacts being soldered to corresponding conductive pads
5 formed on the circuit board by means of a ball grid array technique, the

cover being adapted to retain an electronic device thereon, pins of the electronic device extending through holes defined in the cover and partially extending into the contact receiving holes whereby when the cover is moved with respect to the base, the pins are brought into contact and thus electrically engage with the contacts, wherein the base plate is made of a dielectric material by means of injection molding with a mold comprising core pins whereby the base plate molded thereby defines a plurality of holes in a predetermined pattern for reducing a difference between thermal expansion coefficients of the base plate in first and second directions substantially normal to each other.

13. The electrical connector as claimed in Claim 12, wherein the holes are rhombic with a major diagonal direction thereof being substantially parallel to a flowing direction of a plasticized fluid of the dielectric material.

14. The electrical connector as claimed in Claim 12, wherein at least some of the holes formed in the plate are alternately arranged in rows.

15. The electrical connector as claimed in Claim 12, wherein the dielectric material is a liquid ^{crystalline} ~~crystal~~ polymer.

16. The electrical connector as claimed in Claim 12, wherein the base plate is substantially rectangular, and wherein the thermal expansion coefficient of the plate in the first direction is ^{substantially close to} $13 \times 10^{-6} \text{ mm/mm}^\circ\text{C}$ and the thermal expansion coefficient of the plate in the second direction is ^{substantially close to} $22 \times 10^{-6} \text{ mm/mm}^\circ\text{C}$.

1 ⁶/₁₁ The electrical connector as claimed in Claim ¹/₁₂, wherein the circuit
2 board is made of a material having a thermal expansion coefficient
3 substantially corresponding to the thermal expansion coefficient of the
4 base plate.

1 ⁷/₁₈ The electrical connector as claimed in Claim ¹/₁₂, wherein the holes
2 formed in the base plate have different sizes.

Sub A3
1 19. The electrical connector as claimed in Claim 12, wherein the holes
2 defined in the base plate are elliptical with a major direction thereof
3 being substantially parallel to a flowing direction of a plasticized fluid of
4 the dielectric material.

664250" 26427660
1 20. An electrical assembly comprising a connector and a circuit board, said
2 connector including at least a base plate retaining a plurality of
3 conductive contacts thereto, each of said contacts being attached to the
4 circuit board via a solder ball positioned at a tip of a tail portion of the
5 contact, said base plate defining a plurality of holes around the contacts
6 wherein said holes are designedly arranged to be properly located,
7 dimensioned and shaped so that a thermal expansion coefficient of said
8 base plate is modified to be substantially close to that of the circuit board
9 for preventing breakage of said solder balls.

Add A4